From Radio Pulse to Elusive Particle

Fraenkel, Eric Daniël

Stellingen

behorende bij het proefschrift

From Radio Pulse to Elusive Particle

van

Eric Daniël Fraenkel

1. Polarization measurements provide an effective tool to test theories on radio emissions from air showers.

2. The extraction method of an observable from a band-pass limited transient signal affects both its value as well as its error margins. Extracting only the sample at the pulse maximum is not optimal.

3. The upsampling of a band-pass-limited digitized pulse does not yield any additional timing information.

4. Linear prediction can be used successfully as an online method to suppress periodic radio frequency interference.

5. It is theoretically possible to reconstruct a three-dimensional signal (in the far-field approximation) which was registered in two orthonormal polarization directions, if the arrival direction of the signal is known. In practice, however, one needs to be careful because of the presence of multidirectional background noise.

6. A scientific collaboration acts against the spirit of science if it makes its raw data unavailable or hard to access.

7. A physicist who does modeling as well as modelling is both rare and highly desired.

8. Any engineering problem is at least NP-complete.